REMARKS

An Office Action was mailed on November 16, 2004. Applicants timely filed a Response to Office Action on May 12, 2005, together with a petition for a three-month extension of time. Thereafter, it was brought to Applicants attention by Ms. Barbara E. Alexander of Technology Center 2600 that withdrawn claims 5 – 14 as written in the Response failed to reflect amendments made by preliminary amendment to the application as filed. Applicants thank Ms. Alexander for alerting them to this error, and submit the present Supplemental Response to correct these errors.

Claims 1-14 are pending in the application, with claims 2 and 5-14 having been previously withdrawn. Applicants amend claims 3 and 4, and add new claims 15 and 16. No new matter is introduced. Support for the amendments may be found, for example, in Applicants' specification at page 17, line 7 through page 18, line 17 and page 20, lines 1 - 27.

REJECTION UNDER 35 U.S.C. § 103

Claims 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,898,899 to Ellis in view of U.S. Patent No. 4,920,533 to Dufresne and U.S. Patent No. 3,944,742 to Cunningham. Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ellis in view of Dufresne and U.S. Patent No. 4,268,858 to Wood.

In a Response of July 14, 2004, Applicants made the following arguments:

bi-directional amplifier, a downstream signal transmitted along a coaxial transmission path (TOL in Fig. 3) subordinate to the bi-directional amplifier (BA or EA) at the terminal.

The bias current adjusting load means (Rb or Lb, Cp, Cb) is provided at the end of the coaxial transmission path (TOL), for setting the bias current corresponding to an application of the bias voltage superposed by the bias voltage superposing means (PSC) and for flowing a uniform current on the coaxial transmission path (TOL).

In claim 3, the bias current adjusting load means is a resistance element (Rb) in parallel connection to a terminating resistance element (Rt in Fig. 3). In claim 4, the bias current adjusting load means is constructed of an impedance element including at least one of an inductor element (Lb in Fig. 5) and a capacitor element (Cp, Cb in Fig. 5) in parallel connection to a terminating resistance element (Rt in Fig. 5).

Neither of the cited references, Ellis (U.S. 5,898,899) and Dufresne (U.S. 4,920,533), either alone or in combination disclose or teach the features of the present invention as pointed out above.

Specifically, in the reference Dufresne, a matching impedance (6 in Fig. 1) merely terminates a network, and the impedance does not perform a bias current adjusting load function for setting the bias current corresponding to an application of the bias voltage as the bias current adjusting load means (Rb or Lb, Cp, Cb) in the features of the present invention. Further, the reference Dufresne does not show the claimed relation between the bias current adjusting load means and the terminating resistance element (Rt) requiring that the bias current adjusting means and terminating resistance element (Rt) be connected in parallel.

In the present Action, the Examiner acknowledges that Ellis and Dufresne are silent as to teaching elements of the impedance circuit making up Applicants' bias current adjusting load means. The Examiner suggests however that Cunningham teaches Applicants' claimed "bias current adjusting load means [that] is a resistance element in parallel connection to a terminating resistance element" (see, e.g., column 8, lines 47 – 52 of Cunningham) as claimed in claim 3, and that Wood teaches Applicants' claimed "bias current adjusting load means [that] is constructed of an impedance element including at least one of an inductor element and a capacitor element in parallel connection to a terminating resistance element" (see, e.g., column 8, lines 16 – 20 of Wood) as claimed in claim 4.

Applicants amend claims 3 and 4 to further clarify the structure of the claimed bias current load adjusting means. In amended claim 3, for example, Applicants claim:

> 3. A two-way CATV system comprising:
>
> at least one bidirectional amplifier provided on a CATV transmission path for connecting a CATV center station to a subscriber home;
>
> bias voltage superposing means for superposing, with an AC frequency bias voltage within a bidirectional amplifier at the terminal of said at least one bidirectional amplifier, a downstream RF frequency signal transmitted along a coaxial transmission path subordinate to the bidirectional amplifier at the terminal; and
>
> bias current adjusting load means, provided at the end of said coaxial transmission path, for setting an AC frequency bias current corresponding to an application of the AC frequency bias voltage superposed by said bias voltage superposing means and for flowing a uniform AC frequency current on said coaxial transmission path; and
>
> wherein said bias current adjusting load means includes an inductive element in series with a resistance element coupled by a parallel connection to a terminating resistance element, wherein said inductive element is selected so that the resistance of the coupled current adjusting load means and terminating resistance element approximates the resistance of the terminating resistance element for RF signals.
>
> (Emphasis added).

In amended claim 4, for example, Applicants claim:

> A two-way CATV system comprising:
>
> at least one bidirectional amplifier provided on a CATV transmission path for connecting a CATV center station to a subscriber home;
>
> bias voltage superposing means for superposing, with an AC frequency bias voltage within a bidirectional amplifier at the terminal of said at least one bidirectional amplifier, a downstream RF frequency signal transmitted along a coaxial transmission path subordinate to the bidirectional amplifier at the terminal; and
>
> bias current adjusting load means, provided at the end of said coaxial transmission path, for setting an AC frequency bias current corresponding to an application of the AC frequency bias voltage superposed by said bias voltage superposing means and for flowing a uniform AC frequency current on said coaxial transmission path; and

wherein said bias current adjusting load means includes an inductive element in series with an impedance circuit coupled by a parallel connection to a terminating resistance element, wherein said impedance circuit includes a capacitive element coupled by a parallel connection to a second inductive element or a second capacitive element, and wherein said inductive element is selected so that the resistance of the coupled current adjusting load means and terminating resistance element approximates the resistance of the terminating resistance element for RF signals.

(Emphasis added)

In effect, Applicants' claimed bias current adjusting load means comprises a circuit that is coupled in parallel to a conventional matching impedance circuit at the terminus of a tree network as is taught by Dufresne. However, as claimed in amended claims 3 and 4, Applicants couple a bias current adjusting load means to the conventional matching impedance circuit in such manner that the bias current adjusting load means is effectively transparent to CATV signals being transmitted at RF frequencies. In this manner, the bias current adjusting load means is introduced for the purpose of causing an AC frequency bias voltage supplied by the bidirectional amplifier to generate an AC frequency bias current that is essentially uniform across this transmission path. The bias current is preferably set to overcome a diode effect in the impedance of one or more coaxial connectors in the transmission path, and to match a maximum branch output current level of the bidirectional amplifier.

Applicants respectfully submit that, with respect to amended claim 3, column 8, lines 47 – 52 of Cunningham fails to teach or suggest Applicants' claimed bias current adjusting load means including "an inductive element in series with a resistance element coupled by a parallel connection to a terminating resistance element". With respect to amended claim 4, Applicants respectfully submit that column 8, lines 16 – 20 of Wood fails to teach or suggest Applicants claimed bias current adjusting load means including "an inductive element in series with an impedance circuit coupled by a parallel connection to a terminating resistance element", where

the impedance circuit includes "a capacitive element coupled by a parallel connection to a second inductive element or a second capacitive element".

Moreover, while Ellis discloses that an AC frequency signal component may be transmitted over a CATV transmission path together with a downstream CATV signal for the purpose of providing amplifier power (see, e.g., column 3, lines 20 – 23 of Ellis), Applicants respectfully submit that, in sharp contrast to Applicants' claimed invention, Ellis, Dufresne, Cunningham and Wood in combination fail to teach or suggest Applicants' claimed bias current adjusting load means configured for setting a uniform AC frequency bias current on the coaxial CATV transmission path.

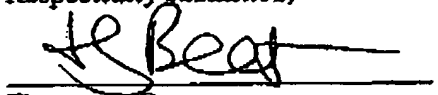
Accordingly, Applicants respectfully submit that neither of claims 3 and 4 is made obvious by any combination of the cited references, and that claims 3 and 4 therefore stand in condition for allowance.

CONCLUSION

In view of the remarks set forth above, this application is in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,



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